DISCUSSION OF THE AMENDMENT

Claims 1 and 21 have each been amended by replacing "using" with --in the presence of--. Claims 13 and 15 have been canceled as redundant.

No new matter is believed to have been added by the above amendment. With entry thereof, Claims 1-12, 14 and 16-21 will be pending in this application.

REMARKS

The rejection of Claims 1, 2 and 4-20 under 35 U.S.C. § 103(a) as unpatentable over WO 01/44325 (Kristen et al), is respectfully traversed.[1]

Due to the length of the specification herein, Applicants will cite to the paragraph number of the published patent application (PG Pub) of the present application, i.e., US 2005/0250920, when discussing the application description, rather than to page and line of the specification as filed.

As recited in Claim 1 herein, an embodiment of the present invention, which is a process for preparing an aqueous polymer dispersion, lies in polymerizing (1) a miniemulsion having an average droplet diameter ≤ 1000 nm, (2) in the presence of one or more metal complex compounds of a particular formula (I). As discussed in further detail below, Kristen et al does not disclose or suggest feature (1), nor would the relatively broad disclosure in Kristen et al of metal complex compounds have led one of ordinary skill in the art to the relatively narrower complex compounds of present formula (I). Note, further, that while not completely dispositive, Kristen et al was cited against the present invention in the International Search Report for the corresponding international application as an "A" reference, i.e., document defining the general state of the art which is not considered to be of particular relevance. Indeed, at the time of the International Search Report, above-discussed feature (1) was not even part of the pending claims.

As Applicants argued in the prior response, Kristen et al does not disclose a miniemulsion. In response thereto, the Examiner acknowledges Kristen et al's silence with regard to the term "mini-emulsion", but finds that in light of the disclosure therein of resulting polymer particles having a particle size of less than 1000 nm, preferably 50-500 nm

[1] Of record is a copy of the specification of U.S. Application No. 10/168,113, which is the U.S. national stage of International Application No. PCT/EP/00/10244, which was published as Kristen et al. Since it is in English, reference to Kristen et al in the text will be to said specification, unless otherwise stated.

and 70-350 nm, relying on the disclosure in the WO version at page 30, lines 31-34, one skilled in the art would have been led to find it "obvious to believe that the emulsions described in the prior art qualify as 'mini-emulsions' defined in the instant claims."

In reply, it is respectfully submitted that the Examiner is confusing particle size of a final polymeric product with droplet size of the disperse (olefinic, or olefinic and solvent) phase in the emulsion during the production of the polymer, as required herein. Indeed, the specification herein contains a significant amount of description of miniemulsions, beginning at [0131]. The main point made therein is that miniemulsions are not inherently formed. Rather, some positive action, such as applying high shear forces (e.g., shear and/or pressure gradients), must be exerted to reduce the size of the droplets to the miniemulsion range from macroemulsion range. No such positive action is disclosed in Kristen et al. Note the reference to Tang et al with regard to a description of the general preparation of aqueous miniemulsions from aqueous macroemulsions, and that it is known to the skilled worker [0134].

The above discussion, in and of itself, should be sufficient to demonstrate patentability over Kristen et al since, as discussed above, Kristen et al neither discloses nor suggests above-discussed feature (1).

Regarding feature (2), in order to arrive at the complex compounds of formula I herein from complex compounds Ia and Ib of Kristen et al, one of ordinary skill in the art would have to make the following selections:

While Kristen et al's process is disclosed as being carried out in the presence of a complex compound 1a or 1b or a combination of 1a and 1b, one skilled in the art would have to select complex 1b;

one skilled in the art would have to select N for substituent E, while Kristen et al discloses that E may be N, P, As or Sb;

one skilled in the art would have to select phenyl or substituted phenyl for substituent R^9, while Kristen et al discloses that R^9 can be hydrogen, C_1-C_6 alkyl, C_7-C_{13} aralkyl or C_6-C_{14} aryl, which may be substituted by a hydrophilic group X (page 3, lines 7-9); and

one skilled in the art would have to select as at least one of R^4 to R^7 and R^9 (with R^9 already selected as phenyl or substituted phenyl), a phenyl group substituted with 1-5 electron withdrawing groups, while Kristen et al contains no such requirement.

Indeed, in the preferred complex compounds 1b'.1 through 1b'.10 of Kristen et al (page 25, line 17 though page 26, line 39), none meet the terms of the present claims. There is no direction in Kristen et al to make the complex compounds of formula I herein. Compare *In re Baird*, 16 F.3d 380, 29 USPQ2d 1550 (Fed. Cir. 1994) **(copy enclosed)**.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The objection to Claims 1 and 22 [sic, Claim 21] is respectfully traversed. Indeed, the objection is now moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that the objection be withdrawn.

Applicants gratefully acknowledge the Examiner's indication of allowability of the subject matter of Claims 3 and 21. Nevertheless, Applicants respectfully submit that all of the present claims in this application are now in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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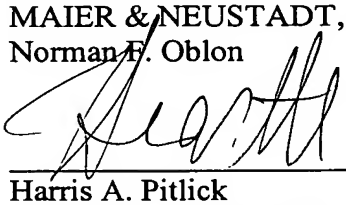
Norman F. Oblon



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In re Baird

U.S. Court of Appeals Federal Circuit
29 USPQ2d 1550

Decided January 19, 1994
No. 93-1262

Headnotes

PATENTS

1. Patentability/Validity -- Obviousness -- Relevant prior art -- Particular inventions (§ 115.0903.03)

Application claim for flash fusible toner is not obvious in view of prior patent, even though generic diphenol formula of patent encompasses bisphenol A of claim, since disclosure of generic formula that may encompass claimed compound does not, without more, render compound obvious, and since generic diphenol formula of patent contains large number of variables and encompasses estimated 100 million different diphenols in addition to bisphenol, but patent does not suggest selection of specific variables to formulate that compound and specifically discloses diphenols which are different from, and more complex than, bisphenol A; prior patent's specific enumeration of derivatives of bisphenol A does not warrant contrary conclusion, since suggestion of certain complex bisphenol A derivatives does not describe or suggest bisphenol A itself and thus does not motivate its selection.

Case History and Disposition:

Appeal from the U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences.

Patent application of Brian W. Baird, Art F. Diaz, William H. Dickstein and Charles M. Seymour, serial no. 07/333,524 (flash fusible toner resins). From decision upholding examiner's final rejection of claims 1-5 on ground of obviousness under 35 USC 103, applicants appeal. Reversed.

Attorneys:

John A. Brady, Lexington, Ky., for appellant.

Adriene B. Lepiane, assistant solicitor, PTO (Fred E. McKelvey, solicitor, and Richard E. Schafer, associate solicitor, with her on brief), for appellee.

Judge:

Before Michel, Plager, and Lourie, circuit judges.

Opinion Text

Opinion By:

Lourie, J.

Applicants Brian W. Baird, Art F. Diaz, William H. Dickstein, and Charles M. Seymour (collectively Baird) 1 appeal from the October 15, 1992 decision of the U.S. Patent and Trademark Office (PTO) Board of Patent Appeals and Interferences, Appeal No. 92-0860, affirming the examiner's final rejection of claims 1-5 of application Serial No. 07/333,524, entitled "Flash Fusible Toner Resins," as unpatentable on the ground of obviousness under 35 U.S.C. Section 103 (1988). We reverse.

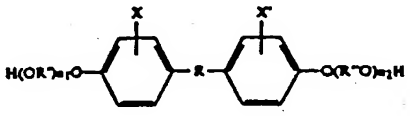
BACKGROUND

Baird's application is directed to a flash fusible toner comprising a polyester of bisphenol A and an aliphatic dicarboxylic acid. Synthesis of the toner compositions involves the acetylation of bisphenol A and the reaction of that product with an aliphatic dicarboxylic acid selected from the group consisting of succinic acid, glutaric acid, and adipic acid. The application discloses that toners containing bisphenol A have optimal characteristics for flash fusing including, *inter alia* , high thermal stability and low critical surface energy.

Claim 1, the only claim at issue, reads as follows:

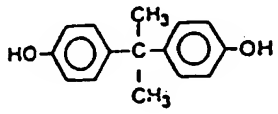
> 1. A flash fusible toner comprising a binder resin which is a bisphenol A polyester containing an aliphatic di [carboxylic] acid selected from the group consisting of succinic acid, glutaric acid and adipic acid.

Claim 1 stands rejected as obvious over U.S. Patent 4,634,649 to Knapp et al., which relates to developer compositions comprised of, *inter alia* , the polymeric esterification product of a dicarboxylic acid and a diphenol of the following generic formula:



> wherein R is selected from substituted and unsubstituted alkylene radicals having from about 2 to about 12 carbon atoms, alkylidene radicals having from 1 to 12 carbon atoms and cycloalkylidene radicals having from 3 to 12 carbon atoms; R ' and R ' ' are selected from substituted and unsubstituted alkylene radicals having from 2 to 12 carbon atoms, alkylene arylene radicals having from 8 to 12 carbon atoms and arylene radicals; X and X ' are selected from hydrogen or an alkyl radical having from 1 to 4 carbon atoms; and each n is a number from 0 (zero) to 4.

Col. 4, lines 16-38. The Knapp formula contains a broad range of variables and thus encompasses a large number of different diphenols, one of which is bisphenol A, which is shown in Baird's application as having the following structure:



Knapp also discloses that the dicarboxylic acids have the general formula:

> HOOCR ' ' 'n 3COOH wherein R ' ' ' is a substituted or unsubstituted alkylene radical having from 1 to 12 carbon atoms, arylene radicals or alkylene arylene radicals having from 10 to 12 carbon atoms and n 3 is a number of less than 2.

Col. 5, lines 6-14. Twenty typical dicarboxylic acids are recited, including succinic acid, glutaric acid, and adipic acid, the dicarboxylic acids recited in claim 1.

The examiner rejected claim 1 as obvious on the ground that Knapp specifically discloses as components of his esters the three dicarboxylic acids recited in claim 1 and a generic formula which encompasses bisphenol A. Recognizing that bisphenol A is defined when certain specific variables are chosen, the examiner reasoned that bisphenol A "may be easily derived from the generic formula of the diphenol in [Knapp] and all the motivation the worker of ordinary skill in the art needs to arrive at the particular polyester of the instant claim[ ] is to follow [that formula]."

The Board upheld the examiner's rejection. It rejected Baird's argument that there was no motivation for one to select bisphenol A from Knapp and summarily concluded that "the fact that [the claimed] binder resin is clearly encompassed by the generic disclosure of Knapp . . . provides ample motivation for the selection of [the claimed composition]." Slip op. at 3. The Board's decision was affirmed on reconsideration.

DISCUSSION

The only issue before us is whether the record supports the Board's conclusion that, in view of the teachings of Knapp, the claimed compounds 2 would have been obvious to one of ordinary skill in the art. We review an obviousness determination by the Board *de novo* , while we review underlying factual findings for clear error. *In re Beattie*, 974 F.2d 1309, 1311, 24 USPQ2d 1040, 1041 (Fed. Cir. 1992).

Baird does not dispute the fact that the generic diphenol formula of Knapp encompasses bisphenol A. Nor does Baird dispute that Knapp specifically discloses the three dicarboxylic acids recited in claim 1. Rather, Baird argues that there is no suggestion in Knapp to select bisphenol A from the vast

number of diphenols covered by the generic formula and that the Board thus erred in concluding that the claimed compounds would have been obvious.

[1] What a reference teaches is a question of fact. *Beattie* , 974 F.2d at 1311, 24 USPQ2d at 1041. The fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious. *In re Jones*, 958 F.2d 347, 350, 21 USPQ2d 1941, 1943 (Fed. Cir. 1992) (rejecting Commissioner's argument that "regardless [ ] how broad, a disclosure of a chemical genus renders obvious any species that happens to fall within it"). *Jones* involved an obviousness rejection of a claim to a specific compound, the 2-(2 '-aminoethoxy)ethanol salt of 2-methoxy-3,6-dichlorobenzoic acid (dicamba), as obvious in view of, *inter alia* , a prior art reference disclosing a genus which admittedly encompassed the claimed salt. We reversed the Board's rejection, reasoning that the prior art reference encompassed a "potentially infinite genus" of salts of dicamba and listed several such salts, but

that it did not disclose or suggest the claimed salt. *Id.*

In the instant case, the generic diphenol formula disclosed in Knapp contains a large number of variables, and we estimate that it encompasses more than 100 million different diphenols, only one of which is bisphenol A. While the Knapp formula unquestionably encompasses bisphenol A when specific variables are chosen, there is nothing in the disclosure of Knapp suggesting that one should select such variables. Indeed, Knapp appears to teach away from the selection of bisphenol A by focusing on more complex diphenols, including 2,2-bis (4-beta-hydroxyethoxyphenyl) propane, 2,2-bis(4-hydroxypropoxyphenyl) propane, and 2,2-bis(4-hydroxyisopropoxyphenyl)propane. Col. 4, lines 51-64. Knapp teaches that in preferred diphenols, R has 2 to 4 carbon atoms and R ' and R ' ' have 3 to 4 carbon atoms, and in "optimum" diphenols, R is an isopropylidene radical, R ' and R ' ' are selected from the group consisting of propylene and butylene radicals, and n is one. Col. 4, lines 38-47. Knapp further states that the diphenol in the preferred polyester material is 2,2-bis(4-hydroxyisopropoxyphenyl)propane. Col. 5, lines 36-38. Fifteen typical diphenols are recited. None of them, or any of the other preferred phenols recited above, is or suggests bisphenol A.

The Commissioner repeatedly emphasizes that many of the diphenols specifically enumerated in Knapp are derivatives of bisphenol A. He argues that Knapp thus suggests the selection of bisphenol A itself. We disagree, because, according to the specification, the diphenol in the esters of claim 1 can only be bisphenol A, not a bisphenol A derivative. While Knapp may suggest certain complex bisphenol A derivatives, it does not describe or suggest bisphenol A and therefore does not motivate the selection of bisphenol A.

" [A] reference must be considered not only for what it expressly teaches, but also for what it fairly suggests." *In re Burckel* , 592 F.2d 1175, 1179, 201 USPQ 67, 70 (CCPA 1979). Given the vast number of diphenols encompassed by the generic diphenol formula in Knapp, and the fact that the diphenols that Knapp specifically discloses to be "typical," "preferred," and "optimum" are different from and more complex than bisphenol A, we conclude that Knapp does not teach or fairly suggest the selection of bisphenol A. *See In re Belle* 991 F.2d 781, 26 USPQ2d 1529 (Fed. Cir. 1993) (DNA sequence would not have been obvious in view of prior art reference suggesting a nearly infinite number of possibilities and failing to suggest why among all those possibilities one would seek the claimed sequence). A disclosure of millions of compounds does not render obvious a claim to three compounds, particularly when that disclosure indicates a preference leading away from the claimed compounds.

CONCLUSION

The Board clearly erred in finding that Knapp would have provided the requisite motivation for the selection of bisphenol A in the preparation of the claimed compounds. Accordingly, the decision of the Board affirming the rejection of claim 1 as obvious over Knapp is reversed.

COSTS

No costs. *REVERSED*

Footnotes

Footnote 1. The real party in interest is Lexmark International, Inc.

Footnote 2. Since the toner, the resin, and the polyester compounds appear to be treated in the Board opinion and patent application as synonymous, and the PTO has premised its obviousness rejection on the obviousness of the compounds, we will treat this case accordingly.

- End of Case -